

SLOVENSKI STANDARD

SIST EN 12475-1:1998

01-november-1998

Razvrstitev gostih oblikovanih ognjevdržnih izdelkov - 1. del: Alumosilikatni izdelki

Classification of dense shaped refractory products - Part 1: Alumina-silica products

Klassifizierung dichter geformter feuerfester Erzeugnisse - Teil 1: Alumina-Silika-Erzeugnisse

Classification des produits réfractaires façonnés denses - Partie 1: Produits de la série silice-alumine

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ICS:

81.080 Ognjevdržni materiali Refractories

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en

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EUROPEAN STANDARD

EN 12475-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 1998

ICS

Descriptors: refractory materials, shaped refractories, dense shaped refractory products, silicate refractories, aluminium oxide, nomenclature, classifications, design, raw materials

English version

Classification of dense shaped refractory products - Part 1: Alumina-silica products

Classification des produits réfractaires façonnés denses -
Partie 1: Produits de la série silice-alumine

Klassifizierung dichter geformter feuerfester Erzeugnisse -
Teil 1: Alumina-Silika-Erzeugnisse

This European Standard was approved by CEN on 18 January 1998.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 187 "Refractory products and materials", the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 1998, and conflicting national standards shall be withdrawn at the latest by August 1998.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

EN 12475 consists of four Parts:

Part 1 : Alumina-silica products

Part 2 : Basic products containing less than 7 % residual carbon

Part 3 : Basic products containing from 7 % to 30 % residual carbon

Part 4 : Special products

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1 Scope

This Part of EN 12475 specifies the classification and designation of dense shaped refractory products of the alumina-silica series, with the following exceptions:

- a) products containing more than 5 % of any metallic oxide other than alumina, silica or iron oxide.
- b) products containing more than 1 % carbon, carbides, nitrides, oxynitrides or any associated materials.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- EN 955-2 : Chemical analysis of refractory products - Part 2: Products containing silica and/or alumina (wet methods)
- prEN 955-5 : Chemical analysis of refractory products - Part 5: XRF analysis by the fused cast bead method

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3 Classification

3.1 Basis of classification

Dense shaped refractory products of the alumina-silica series shall be classified according to the following five criteria:

- a) the type of product;
- b) the group determined by its alumina and/or silica contents;
- c) the principal raw material(s);
- d) the state of the raw materials;
- e) the nature of the bond (including any post treatment).

3.2 Type of product

The types of dense shaped refractory products of the alumina-silica series included in this classification are:

- a) high alumina (HA)
- b) fireclay (FC)
- c) low alumina fireclay (LF)
- d) siliceous (SS)
- e) silica (SL).

NOTE : The abbreviations used in the list a) to e) are from the English names for the refractory products.

These product types shall be classified in accordance with table 1, by their chemical analysis carried out on the calcined samples in accordance with EN 955-2 or prEN 955-5.

3.3 Classification group

The classification group of dense shaped refractory products of the alumina-silica series is determined by its alumina and/or silica contents, with the product type, applicable to the ranges given in table 1.

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Table 1. Classification by product type and group

Product type	Group	Contents (m %)	
		Al ₂ O ₃	SiO ₂
High alumina	HA 98	Al ₂ O ₃ ≥ 98	
High alumina	HA 95	95 ≤ Al ₂ O ₃ < 98	
High alumina	HA 85	85 ≤ Al ₂ O ₃ < 95	
High alumina	HA 75	75 ≤ Al ₂ O ₃ < 85	
High alumina	HA 65	65 ≤ Al ₂ O ₃ < 75	
High alumina	HA 55	55 ≤ Al ₂ O ₃ < 65	
High alumina	HA 45	45 ≤ Al ₂ O ₃ < 55	
Fireclay	FC 40	40 ≤ Al ₂ O ₃ < 45	
Fireclay	FC 35	35 ≤ Al ₂ O ₃ < 40	
Fireclay	FC 30	30 ≤ Al ₂ O ₃ < 35	
Low alumina fireclay	LF 10	10 ≤ Al ₂ O ₃ < 30	SiO ₂ < 85
Siliceous	SS 85		85 ≤ SiO ₂ < 93
Silica	SL 93		SiO ₂ ≥ 93

3.4 Nature of raw materials

Dense shaped refractory products of the alumina-silica series shall be classified by their principal raw material, when greater than or equal to 50 %, or by their two principal raw materials when less than 50 %.

NOTE : Some examples of raw materials are as follows:

- Corundum;
- Bauxite;
- Mullite;
- Sillimanite and associated minerals (andalusite, kyanite);
- Fireclay;
- Quartzites and associated products (silica sand, fused silica).

3.5 State of raw materials

The raw materials shall be classified by using one of the three designations as follows

- a) naturally occurring (raw or calcined)
- b) synthetic calcined
- c) fused

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3.6 Nature of the bond

The bonding system shall be classified by using one of the three designations as follows:

- a) ceramic bond, formed by sintering during firing to a temperature in excess of 800 °C;

NOTE 1 : This can be either with or without impregnation after firing.

- b) inorganic chemical bond, formed by chemical reaction at ambient temperature or at a temperature below 800 °C;

NOTE 2 : This can be either with or without tempering at a temperature below 800 °C.

- c) fusion cast, formed by total fusion of the product.